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THE RELATION OF RELIGION TO INSTINCT

A. S. WOODBURN
Camp Dodge, Iowa

There is a general recognition today that the elements common to the religions and those common to the sciences are psychological. The facts of religious experience and the facts of scientific experience are so multiform that the only place to discover a common basis is in the attitudes of consciousness giving rise to the variant concrete expressions. Furthermore, there is a general recognition among psychologists that the genesis of the religious and scientific attitudes is localizable in the instinctive behavior of the psycho-physical organism. This has led some scholars to posit the existence of a specific religious instinct and of a specific scientific instinct. Others again have endeavored to account for the rise of religion and science by reference to specific instincts with which they are identified. The criticism of such hypotheses is that they proceed too frequently on the basis of a definition of instinct that is biologically unsound. Biologically speaking, an instinct is a congenital co-ordination of reflexes, neurally integrated, and effecting an organic response, characteristic of and serviceable to the species, and in some manner capable of subsequent modification. It is a term descriptive of certain types of reactions, and is more correctly used in its adjectival than its substantive form.

The great truth which lies behind the theories that we have noted is that the religious and scientific attitudes have their genesis in the innate and instinctive dispositions and behavior of the race. The thesis which I propose is that the origin of both religion and science, while instinctive, is multiple. We must bear in mind that there are no such things as religion and science, in the sense of species. Both are generic terms. There are religions and sciences. We may say of both what William James said of religion, viz., that they are "collective names like government."¹

¹ William James, *The Varieties of Religious Experience*, p. 26.

The various species of these two genera are so multiform that it has been difficult to get a definition of religion. Most definitions have been in terms of the species in which the author was especially interested. The common element in all religions, as Dr. Watson has pointed out, is "the social attitude toward the non-human environment," and the common element in the sciences is the "mechanical attitude toward the non-human environment."¹

Therefore we are concerned with a variety of phenomena that are connected with the rise of these attitudes. The history of religions furnishes us with a heterogeneity of data, representing interests as varied as life itself. Whatever may be one's theory of man's origination of an extra-human environment, it must be evident to the student of history that he has associated almost all of the interests of life at some time with that environment in his struggle for existence. So too the history of the sciences furnishes evidence of a progressive attempt to gain dominion by mechanical means over the forces by which he was environed. Man, in his achievement of religion and science, was not dealing with phenomena which he was able to differentiate under these two captions. They are both of them human products, arising in a human environment by the effort of man as he attempted to gain control in the great struggle for existence. They represent variant attitudes toward the extra-human environment in accordance with whether that environment was conceived to be amenable to social relationships or to be wholly under mechanistic law. So that they involved, to a considerable extent, the same human interests, and arose as differentiable techniques in the struggles and conflicts of life which was characterized by a unified type of instinctive behavior.

This thesis may be illustrated by reference to different types of instinctive behavior, and I shall attempt to illustrate it by a brief treatment of the instinctive reactions connected with (1) the obtaining of food, (2) mating and procreating, (3) self-preservation, (4) contact with the strange and unusual, and (5) gregariousness.

¹ A. C. Watson, "The Logic of Religion," *American Journal of Theology*, XX, 98.

I. THE INSTINCTIVE REACTIONS CONNECTED WITH THE SECURING OF FOOD

The importance of the supply of food is apparent, for with that is tied up the existence of the individuals of the group. The necessity of food underlies the total economic life, and it is to the ordinary man the all absorbing interest. Anthropologists conclude that in prehistoric times primitive man inhabited the equatorial regions where his wants were simple, and nature offered an ample supply to him of those things which were necessary to his existence. But as time passed, there came about critical situations in this phase of the struggle for existence. We have observed that the reflective process was a product of a conflict of instincts or of conflicting ways of securing satisfaction for those instincts. When the natural supply of food failed, or became limited, and man had to go into unexplored regions to supply his needs, he faced crises which induced reflection. When a choice was presented to him, because of the luxuriance of the available supply, he was compelled to call into being a selective process, and so the conflict realm induced reflection. The latter situation was not one in which he needed to seek for any outside assistance, for it was simply a matter of gratifying his particular taste. But the former situation constituted a crisis and demanded action. It called for the creation of some technique to help him over such critical experiences.

If we go into the accounts of the ways in which primitive peoples actually met such situations, we find a considerable degree of uniformity in the techniques which they worked out. The first of the techniques to be mentioned is *magic*. Magic is an attempt to get satisfaction for a desired end by reference to some occult powers. It is an attempt at coercion, and is based upon the belief that if one knows the proper occult means the securing of the desired end is inevitable. Hence magical behavior is intended to coerce the occult powers to do the thing needed. It is not necessary for our purposes to go into an extended discussion of magic, the attempted classifications, etc. The point of importance for us to note is that it arose as a technique to help man over critical situations, many of which arose in connection with the supply of food. How was a good crop of grain or fruit, or a good catch of

fish, or a plentiful supply of rain to be secured? Magic was one solution. The system was completely wired so that, if you knew how to turn on the switch, the circuit was complete and the result inevitable.

The question that concerns us is the question as to the connection of magic with religion and science. Magical practices arose in an age prior to the differentiation of the various attitudes. It was a pre-psychological period. We are not compelled to try to identify magic with one human attitude to the exclusion of the others. On the one hand, if the conception of religion as a social attitude toward the extra-human environment be correct, magic has elements that are decidedly religious. If the definition used the phrase *superhuman* instead of *extra-human*, magic would have to be excluded in the majority of cases. Magical practices are sometimes directed to the object directly; sometimes to a spirit or god, when it was tied to animism. The very recognition of an occult power which man is endeavoring to coerce implies a socializing tendency which is at least on the way to religion.

On the other hand, magic is also prescientific. It was man's endeavor to get over the critical situation by the use of a mechanical means. In many instances the social element was absent, especially in private magical ceremonies and formulas, and indeed in many instances of public magic. If the performance of a ceremony or recitation of a formula was regarded as productive of the desired end, we have here primitive man's first conception of cause and result. It was by no means a regular and orderly form of the causal category, but it was a beginning, and in that sense it was a precursor of a scientific explanation.

The use of magical practices for the securing of an abundant supply of food may be illustrated from scores of sources. We need only refer to the rain-making ceremonies which are practiced in Central Africa among the Agoni people, in India, in Russia, and in Australia.¹ Similarly the Indians of British Columbia resort to magical practices to insure the supply of salmon.² In Central

¹ Cf. J. G. Frazer, *The Golden Bough*, Part I, Vol. I, pp. 249, 250, and D. G. Brinton, *Religions of Primitive People*, pp. 173, 174, for accounts of rain-making ceremonies.

² Frazer, *op. cit.*, p. 108.

Australia sympathetic magic is systematically used to insure the supply of the totem animal or plant, which is, in the majority of cases, the chief article of diet.¹ Frazer has some interesting accounts of ceremonial dances and other practices observed in certain parts of Europe—Transylvania, Baden, and Macedonia—to make the crops grow high.²

The connection between the food interest and religion is further observable in a multiplicity of ceremonials connected with various primitive peoples. With the evolution of a supramundane world, peopled with spirits, some benignant and some malignant, the human task was to relate one's self in such a way to that world as to avoid the displeasure and to procure the aid of these spirits in securing the satisfaction for felt needs. Hence the cult arose as a technique for operating on the wills of such spirits so as to enlist their sympathy and procure their assistance. In their elemental forms the ceremonials connected with the cult were designed to secure satisfaction for those needs which grew out of instinctive behavior. Illustrations are available in abundance. Ceremonials connected with the mother-goddess associated her with the idea of fertility. Oases were the sacred spots to the Arabs. Sacrificial rites were connected with edible animals. The images and objects of worship are in numerous instances the characteristic food objects for the geographically defined region where the worship prevails. Totem objects are in the majority of cases the most staple food objects of the totem clans. Spencer and Gillen give a list of tribes in Central Australia with their respective food objects. The totem of the Ainus was a bear; of the Hopi Indians, maize; of the Arabs, the date palm; of certain Babylonian people on the Persian Gulf, the fish.

We may here mention the suggestion by Professor Ames that science illustrates "the insight and mastery worked out in connection with the food process,"³ and to a similar position taken by Professor Thomas. There seems to me to be no doubt of the correctness of this theory. With the development of the observational processes, man would note that certain fruits and certain

¹ *Ibid.*, p. 85.

² *Ibid.*, pp. 137-39.

³ *The Psychology of Religious Experience*, p. 416, note.

grains came only at certain seasons, and that during the remainder of the year there was no supply. Fisher folk would observe that certain meteorological conditions were favorable and others unfavorable to a good catch. Hunting people would find climatic and other conditions affecting the supply of game. Thus a sense of regularity, of conditionality, and hence of causality gradually evolved in connection with the food supply. The occurrence of critical situations, as the natural supply became insufficient and man had to evolve mental powers to help him over the crises, would only serve to make his observation keener as to conditionality and causality. With the progress of time this led to practical reactions in the evolution of primitive agriculture and horticulture as techniques by which man might gain control over the food supply. So that the reactions of the food instinct led in this way to the beginnings of a scientific attitude.

II. INSTINCTIVE REACTIONS CONNECTED WITH MATING AND PROCREATING

The other dominant life-interest is that of reproduction. If food is essential to the existence of individuals, mating and procreating are necessary to the preservation of the species. It was to be expected that man, in his desire to obtain control over the forces by which he was environed, should so organize his techniques as to obtain help in matters relative to these two primal life-interests. We have seen how that worked out in regard to the food interest. It may be shown in an analogous way that he used both the social and the mechanical processes in attaining control of the sexual interests.

The argument has been presented for an understanding of magic which involves both the pre-religious and the prescientific elements. The theory which was applied to magical practices in connection with the food process applies in precisely the same way in respect to magical practices connected with the reproductive process. Frazer has recounted various instances where the resort has been to sympathetic magic to secure the ends served by the procreative instinct. In Sumatra a make-believe child is used for a barren woman who desires children. In Greece, Bulgaria, and

Bosnia there is a make-believe ceremony of restoring dead persons to life. There is also an Indian practice of shooting darts at a clay image in order to win the love of a woman.¹

In some instances the magical practices involve both the food and the reproductive interests. It is a carrying over of the idea of fertility from the region of the sexual life to those activities connected with the food supply. "The Greeks and Romans sacrificed pregnant victims to the goddesses of corn and of the earth, doubtless in order that the earth might teem, and corn swell in the ear."² Analogously the magical value of pregnant women to communicate fertility was a widespread belief. Austrian and Bavarian peasants gave the first fruit to a pregnant woman to make the tree bear abundantly. Nicobar Islanders have pregnant women and their husbands, and Orinoco Indians have pregnant women, sow the seed to insure a good crop. In some tribes the blood shed at the circumcision and subincision of boys and also the foreskin are regarded as possessing fertilizing value, and so are buried in proximity to the crop which it is desired to cultivate.³ In other cases circumcision is regarded as in the nature of a sacrifice to the goddess of fertility, securing the protection of the goddess for the child, and putting the child's reproductive powers at the command of the deity.⁴

In this connection reference may be made to "taboo," which has been rightly described as "negative magic."⁵ Taboo has its origin in the social structure, and its origin is purely human. But in animism it came to be associated with the rights of gods and demons which were not to be infringed upon, without the transgressor endangering himself by the infringement. It has been associated with food objects, with sexual functions, and with dead bodies. The uncleanness that rests with all sexual functions is most marked. Marriage, a woman in her courses, a man with an issue, and the birth of a child are all curiously tabooed. "This is because birth and everything connected with the propagation of

¹ Frazer, *op. cit.*, pp. 70-77.

³ *Ibid.*, pp. 95 ff.

² *Ibid.*, p. 141.

⁴ Barton, *Semitic Origins*, p. 100.

⁵ Ames, *op. cit.*, p. 88; N. W. Thomas, "Taboo," in *Encyclopaedia Britannica* (11th ed.), XXVI, 337 ff.

the species . . . seem to him to involve the action of superhuman agencies of a dangerous kind."¹ Thompson gives a number of instances of sexual taboo, as (a) menstruation taboos, (b) cohabitation taboos, (c) childbirth taboos, (d) girls of irregular menstruation supposed to be possessed of supernatural power, and (e) men fearful of interfering with the harem rights of gods and goddesses.² Here we have, as in positive magic, the social attitude toward powers considered to be extramundane, and also a primitive approximation toward a causal explanation of certain mysterious phenomena.

The ceremonies connected with the attainment of puberty afford another example of the connection between sex and religion. The phenomena in connection with puberty were mysterious and seemed to involve the coming to birth of an ability to perform certain instinctive reactions, hitherto impossible. It is the period when the boy or the girl sees the dawn of the adult life, and involves the birth of the youth's appreciation of his or her part in the group life. Consequently it has been a custom, widespread both chronologically and geographically, to mark the transition by certain sacred rites, almost invariably attended with an element of mystery.³

Another example of the connection between religion and sex is phallicism. Examples of phallic worship, or worship of the generative power of nature as symbolized in the phallus, may be seen in the history of the religions of Greece, Phoenicia, Rome, Mexico, Peru, India, and Japan.⁴

Still another group of phenomena may be cited as illustrating the bond of connection between religion and sex. I refer to the conversion phenomena in connection with the Christian religion. Those who have made thorough investigations in this field have

¹ Thompson, *Semitic Magic*, pp. 113, 114.

² *Ibid.*, pp. 131-33.

³ Examples of ceremonials connected with puberty and initiation abound. Cf. Brinton, *op. cit.*, pp. 197-200; Jane Harrison, *Ancient Art and Ritual*, pp. 106-13; Frazer, *The Golden Bough*, copious references.

⁴ See art. "Phallicism," in *Encyclopaedia Britannica* (11th ed.), XXI, 345, and art. "Phallism" in Hastings' *Encyclopedia of Religion and Ethics*, IX, 815 ff., by Hartland.

come to the conclusion that conversion is a distinctly adolescent phenomenon. From the biological standpoint we have noted that the adolescent period is the time when the procreative instincts are awakened. It is also a well-known fact that adolescence is the period of life in which the majority of conversions take place. The philosophy of the situation has been treated in the works of Starbuck, Stanley Hall, Coe, Ames, Leuba, and others, and need not concern us here. But the fundamental connection between the religious awakening and the birth of the sexual instinct seems to be proven by their synchronous appearance.

It is interesting to note that man, in picturing to himself the world of the gods, has carried over the elements which were of paramount interest in human life. Surely the gods must be like men, possessed of like interests and desires. In Assyrian mythology the goddess Ishtar is pictured as conducting amorous relationships with men. In Indian literature, Krishna is portrayed as sporting with shepherd girls. The Mohammedan idea of heaven is a carrying over into the other world of the degradation of womanhood in sensuous pictures.

The association between activity connected with behavior induced by the sexual instinct and religion is established by an abundance of historical evidence. There is not so much data to show the connection between the beginnings of science and procreative activity. At the same time there is evidence that cannot be overlooked. From the point of view of magic and taboo the material is abundant to show the connection with the reproductive life. We have already observed that magic implies a mechanical technique for avoiding dangers and overcoming crises, so that in magical practices we have the prescientific view of man toward the sexual life. The progress of more exact conceptions broke down magical causality and paved the way for a scientific causality.

Barton gives it as his opinion that among the Semites "the beginnings of intelligent life, the knowledge of clothing, agriculture, and the arts of civilization"¹ were attributed to the sexual relation. Thomas attributes the development of mental impressionability to the strain on the attention in connection with food and

¹ Barton, *op. cit.*, pp. 101, 102.

reproduction.¹ From the sexual instinct arises a susceptibility to the opinions of others, resulting in the mental activity of comparison and selection.

One of the best evidences for the theory proposed is the growth of the primitive conception of paternity.² Anthropologists find that in primitivity the birth of children was a mystery. In the beginning the father of the child did not understand that he had a part in the reproductive process, owing to ignorance concerning the nature of physiological processes. But as the understanding came, it meant the birth of a primitive conception of causality in respect to the procreative process. The first discovery of the part played by the father in the reproductive process led to the strange "couvade" ceremony among certain primitive peoples, an illustration of the crudity with which they formed their first mental tools. Nevertheless, it marks the beginning of the displacement of mythological knowledge by scientific knowledge in regard to the sexual processes and relationships.

III. THE INSTINCTIVE REACTIONS ASSOCIATED WITH SELF-PRESERVATION

Some psychologists would include self-preservation under the instinctive behavior connected with the obtaining of food. If they are to be considered together, I would prefer to include the food-getting instinct under self-preservation, because the latter is the more generic term and might be taken to include a larger scope. It is even possible to use the term "self-preservation" in a sense wide enough to include all instinctive behavior. But in this instance I propose to use it in a narrower connotation as applying to two types of reaction, the aim of which is to avoid dangers and to overcome opposition to the normal operation of the life-processes. These are flight or the defensive reaction with its accompanying emotional tone of fear, and pugnacity or the offensive reaction with its concomitant emotion of anger. These two types of behavior are the characteristic expressions of the instinctive tendency toward

¹ Thomas, *Sex and Society*, pp. 118, 119.

² A thorough elaboration may be consulted in the work of E. S. Hartland, *Primitive Paternity*, 2 vols., London, 1909.

self-preservation. We might say that they are the organism's way of expressing the will to live in the face of circumstances ready to crush it. To be sure, we may include the instinctive disposition to procure food for the satisfaction of the felt needs in this organic will to live. Indeed the instinctive behavior of self-preservation may be associated with many other circumstances and types of behavior. Circumstances connected with the securing of food, with mating, with procreation, with curiosity, and with gregariousness may be the stimuli calling forth flight or pugnacity, with their emotional tones of fear or anger.

Starbuck sees in religion a response to the instinct of self-preservation and the desire for the fulness of life on the physiological plane.¹ Hocking identifies the two instincts.² Herter finds in religion, as well as in music, painting, and literature, a human product which represents "the fusion of self-preservation and the sexual instincts."³

There is no doubt that much of the ceremonial originated by primitive people was designed to help them in thus determining to persevere in life, in the struggle for existence. That fact may be illustrated from almost any ceremonial. Moreover, the struggle for existence lies behind the evolution of both the religious and the scientific techniques. Socially and mechanically they are designed to help man satisfy the felt needs of life in the struggle against the opposing forces. Primitive man's ceremonial was indicative of a fear lest he should lose out in the struggle for existence. The ritual was an expression of the felt emotion, often by a mimetic representation of the desired result which enhanced the desired end or object. This factor in the process, whereby that which, it was felt, would satisfy the need was mimetically enacted beforehand, illustrates the indistinguishable beginnings from which art and religion originate. Jane Harrison has presented the matter in *Ancient Art and Ritual* with typical illustrations.⁴ Thus also

¹ Starbuck, *The Psychology of Religion*, p. 403.

² Hocking, *The Meaning of God in Human Experience*, p. 106.

³ Herter, *The Biological Aspect of Human Problems*, p. 285.

⁴ See pp. 24-27, where she refers to the prayer-disks of the Huichol Indians, which as prayers may be classified as ritual, and as decorated surfaces are specimens of primitive art.

many of the dramatic representations which enter into religious ceremonial are illustrative of the emotion of fear lest they should not pass the crisis in safety. Miss Harrison presents an account of a traveler in Euboea during Holy Week who was

struck by the genuine grief shown at the Good Friday services. On Easter eve there was the same gloom and despondency, and he asked an old woman why it was. She answered: "Of course I am anxious; for if Christ does not rise tomorrow, we shall have no corn this year." The old woman's state of mind is fairly clear. Her emotion is the old emotion . . . fear, imminent fear for the failure of food. The Christ again is not the historical Christ of Judaea, still less the incarnation of the Godhead, proceeding from the Father; he is the actual figure fashioned by his village chorus and laid by the priests, the leaders of that chorus, in the sepulchre.¹

Farther down in the scale of civilization the fear element is to be seen operative in many ways. It is tied up with animism in the majority of cases. So prevalent is this element of fear in the primitive forms of religion that many have seen in it the origin of religion. Lucretius said: "It is fear that engenders the gods." Thomas Hobbes said: "The feare of things invisible is the natural seede of religion."² David Hume said: "The first ideas of religion arose from a common concern with regard to the events of life and fears which actuate the mind."³ Ribot finds the emotion of fear in varying degrees in all religions, "from profound terror to vague uneasiness, due to the faith in an unknown, mysterious, impalpable Power, able to render great services, and, more especially, to inflict great injuries."⁴

The source books furnish us abundant illustrations of the fear motive in religion and in other social customs. Mary H. Kingsley cites examples of the influence of fear among the people of Guinea. She describes it thus:

I have often seen on market roads in many districts but always well away from Europeanized settlements, a little space cleared by the wayside, and neatly laid with plantain leaves, whereon were very tidily arranged various little articles for sale. . . . Against each class of articles so many cowrie

¹ *Ancient Art and Ritual*, pp. 73, 74.

² Cf. Thomas Hobbes, *Leviathan*, p. 73.

³ Quoted by Leuba, *The Psychological Origin and Nature of Religion*, p. 81.

⁴ Ribot, *Psychologie des sentiments*, 4th ed., 1913, p. 309.

shells or beans are placed, and always hanging from a branch above, or sedately sitting in the middle of the shop, a little fetish. The number of cowrie shells or beans indicates the price of the individual articles in the various heaps, and the little fetish is there to see that any one who does not place in the stead of the articles removed their proper price, or who meddles with the till, shall swell up and burst.¹

The element of fear led not only to a socializing attitude toward the extra-human environment, but the mechanical attitude also was developed in the struggle of life to dominate in the face of dangers and crises. This is exemplified in the use of magic, counter-magic, and sorcery as techniques which were thought to furnish the individual with a mechanism for controlling those environmental forces which were otherwise able to work him ill. The formula of the magician or sorcerer as a mechanism of this type is illustrated in the life of the Todas of South India, whose whole social fabric is bound up with the life of the buffaloes. An example of the sorcerer's formula is as follows:

For the sake of Pithiotea, Öm, Teikirji and Tirshti, by the power of the gods, if there be power; by the gods' country, if there be a country; may his calves perish; as birds fly away, may his buffaloes go when the calves come to suck; as I drink water, may he have nothing but water to drink; as I am thirsty, may he always be thirsty; as I am hungry, may he also be hungry; as my children cry, so may his children cry; as my wife wears only a ragged cloth, so may his wife wear only a ragged cloth.²

When the sorcerer is uttering this incantation he holds in his hand five small stones tied together by a hair and all tied in a cloth. Then they are hidden in the thatch of the house of the man on whom he desires the misfortunes to fall. Thus satisfaction for the instinct for self-preservation is sought by a mechanical means which is supposed to operate in removing the danger which the individual fears is imminent. As we have observed in analogous circumstances, the breakdown of the magical conception of causality was what led to the search for a scientific explanation and a scientific technique.

¹ Mary H. Kingsley, *West African Studies*, pp. 248, 249. Other illustrations may be found in Frazer, *The Golden Bough*; Tylor, *Primitive Culture*; Spencer and Gillen, *The Northern Tribes of Central Australia*.

² W. H. R. Rivers, *The Todas*, pp. 256-58.

The instinct of self-preservation reacts at other times in pugnacity, and this is the activity which is basal to war. Sometimes fear enters and may serve either to stimulate the anger and fighting power or at other times to inhibit it. Professor Ames has rightly emphasized war as one of the occasions giving rise to the ceremonial. "In carrying out any interest savage tribes usually find innumerable occasions for war. The war ceremonies are therefore much in evidence. They consist of councils, assemblages, decorations, fasts, parades, manoeuvres, dances, triumphal processions, feasts."¹

Tylor points out how these savage races create divinities for special functions, including war. One of the numerous illustrations which he records is cited: "Areskove, the Iroquois War-god, seems to be himself the great celestial deity; for his pleasant food they slaughtered human victims, that he might give them victory over their enemies; as a pleasant sight for him, they tortured the war-captives; on him the war-chief called in solemn council, and the warriors, shouting his name, rushed into the battle he was surveying from on high."²

But man did not depend exclusively on the spirit world to help him to win his battles. His need for self-preservation urged him to seek mechanical means also. At first he found his implements and tools and utensils and weapons in nature. Nature provided him with the grubbing-stick to enable him to handle the soil, with a round stone to serve as a hammer, with a cave or a thickly befoliated tree for a shelter, with a rough stick for a club, and with a sharp stone for a knife or a spearhead. The critical situations with which he was surrounded led to the birth of intelligence and selection. These tools and weapons were improved and his mechanistic technique made increasingly efficient. In proportion to his advancement in this direction, he approached in the direction of a scientific conception of causality.

IV. THE INSTINCTIVE REACTIONS STIMULATED BY CONTACT WITH THE STRANGE AND THE UNUSUAL

It will not be necessary for my purpose to go into an elaborate discussion concerning the problem as to whether curiosity is an

¹ *Op. cit.*, p. 75.

² Tylor, *Primitive Culture*, II, 306, 307.

instinct or not. Some psychologists deny that it is. Many claim that it is, among whom some classify it as a compound or secondary instinct. Biologists are agreed that there are in man and in many of the lower animals tendencies to distinctive reactions in the presence of the strange and the unusual. The behavior of dogs, of water snakes, and especially of monkeys is illustrative. The same disposition is apparent in little children. I do not know of any word which my daughter has used more frequently during her fourth and fifth years than "Why?" For this type of behavior, whereby there is a disposition to pry into the strange and the unknown and which is indeed complex, we may apply the name "curiosity" in a generic sense. Very suggestive discussions concerned with the reference of science to a specific instinct have been made by Shand and Ribot. The analysis of Mr. Shand seems to me to be keen. His position, it may be observed, is close to that of Mr. McDougall, whose discussion of curiosity¹ is good. The point which has interest in this connection is that both of these psychologists find curiosity as one of the roots appearing both in religion and in science. Men of the greatest intellectual and spiritual vigor are men in whom the disposition to inquiry is most marked. To the impulse of curiosity we surely "owe most of the disinterested labors of the highest types of intellect. It must be regarded as one of the principal roots of both science and religion."² Mr. Shand's theory, by which he traces elements of both religion and science to curiosity, has already been referred to.

The result of this prying into the unusual and the unknown, like other instinctive behavior to which we have given our attention, has been the development of two distinctive attitudes. One is the attempt to establish a personal relationship with the power which the mind of man has posited as an *animus* in the unknown. This is a religious conception because it is a socializing concept and man tries to establish communion with this power. It is a prescientific concept because it is an effort to explain the inexplicable by reference to a First Cause. Such an idea finds expression among many

¹ *An Introduction to Social Psychology* (10th ed.; Boston, 1916), pp. 57-59, 315-20

² *Op. cit.*, p. 59.

primitives, such as the Dakota Indians' *wakan*, the Polynesian *mana*, and the Algonquins' *manitou*. We have an expression of the same attitude in a more sophisticated environment in the concept of an *Unknowable* presented by Herbert Spencer. The desire to pry into the sphere beyond experience, the meta-empirical or metaphysical, is accompanied by the effort to establish social relationship therewith, or an element of mysticism.

The other attitude is evidenced in the insatiable desire to add to the stock of human knowledge by the paths of investigation and experimentation. It is the basis of many of the most brilliant achievements of the human race. It has led to our scientific conception of causation and mechanical control through its accompanying technique. It has retired much that is magical and many animistic conceptions through the splendid discoveries which it has made possible.

In this connection it is of interest to note that the mystical temperament is more characteristic of people in tropical climates than of those in the temperate zones, whereas the scientific temperament has had a richer development in the temperate climes. It leads to the conclusion that among the stimuli which affect the reactions of the organism the climatic forces play an active rôle. The warmer the climate, the greater the *ennui*, and *ennui* is no friend to science. At the same time, the warmer climates have given birth to more mystical types of religion, as witness Hinayana Buddhism, the *bhakti* development of Hinduism, the Sufi sect of the Mohammedans, and the ascetic ideal of Christianity developing on Egyptian soil. Theologies or scientific treatments of religious development have largely originated in the temperate climes where the climatic conditions seem to favor the development of a colder, more objective type of intellectual acumen. So also the larger developments of the other sciences have had their history in the temperate zone, and particularly in the north temperate zone.

V. THE INSTINCTIVE REACTIONS CONNECTED WITH GREGARIOUSNESS

Psychologists are not in perfect unanimity as to whether gregariousness is an instinct or not. Sometimes it is interpreted as intelligent behavior growing out of the needs created by the hunger

and sex instincts.¹ Those who argue for the instinctive character of gregariousness refer to such phenomena in the lower animals as the swarming of bees, migrations of birds, colonies of ants, packs of wolves, herds of deer, flocks of sheep, droves of cattle, shoals of fishes, and the like. Among primitives the characteristic form of life is the group life of a clan or a tribe. In many cases the unity of the group is preserved by means of a totem animal with which the life of the group is identified. Among children the disposition to form cliques and gangs is further evidence of this tendency. The disposition for large numbers of people to herd in towns and cities is another link in the chain of evidence.

From the biological point of view the evidence points to the belief that there are certain co-ordinations of reflexes which have been neurally integrated in such a way that the behavior is serviceable in helping not only the individual but the group in the struggle for existence, i.e., serviceable for co-operation. Professor Brooks has shown convincingly that a study of the adaptations that are developed in the various species leads to the conclusion that such adaptations are "for the good of the species and not for the individual" as such. Moreover, he argues that "the law is universal, but since the welfare of the species is usually identified with that of the constituent individuals it is not obvious unless the good of the species demands the sacrifice of the individuals." The general law of nature which refers the properties of all living things to a social, utilitarian basis affords an explanation, he claims, for such varied gregarious activities as the migrations of salmon and the altruistic moral sense of man.²

The question at issue is as to which is the dominant principle in biological evolution, struggle or co-operation. Does the struggle for existence mean a ruthless struggle in which only the fittest individuals survive, and the less fortunate are destroyed by cruel competition? There are some phenomena in nature, such as the struggle between different species of ants for mutual extermination, which afford evidence that certain biologists consider to be sufficient

¹ Ames and Thomas find the origin of the social bond in the sexual life. See Ames, *op. cit.*, p. 37; Thomas, *op. cit.*, p. 56.

² W. G. Brooks, *The Foundations of Zoölogy*, pp. 117-19.

for the adoption of mutual struggle as a principle of biological evolution.¹ But the evidence seems to point more conclusively in the direction of the principle of mutual aid. There is more of co-operation than of cruel competition among the lower animals as well as in human society, and the biological justification for making sociability a law of nature is quite as sound as the argument for mutual struggle. The struggle for existence is not to be interpreted as a struggle to exterminate the unfit, but as a collective struggle. Gregariousness is the rule in animal behavior, and not the exception. Association is to be seen in every stage of the evolutionary process. Decay and extermination are phenomena much more characteristic of unsociable than of gregarious animals. "Students of animals under domestication have shown us how the habits of a gregarious animal, taken away from his kind, are shaped in a thousand details by reference to the lost pack which is no longer there. . . . It is a strange thing, this eternal hunger of the gregarious animal for the herd of friends who are not there."² There is good reason to believe that the non-social animal is a decadent type, the gregarious animal being antecedent and truer to type.

The collective activities of the lower animals are almost as varied as in the case of primitive man. The animals co-operate with others of the same species for warding off inclement weather, guarding against danger, fighting, playing, dancing, singing, obtaining nutriment, migrating, procreating, and for the elimination of competition. So, too, primitive man lives an associated life. He is never characterized by individualism, but frequently by communism. The most primitive people observable, such as the Todas of South India, the Bushmen of South Africa, and the aborigines of Australia, show a well-developed tendency to sociality.

The higher up we proceed in the scale of culture and sophistication, the more evidence do we see of man's social nature and the more complex become the co-ordinations of men. Among mam-

¹ Cf. the argument of the German biologist in "Headquarters Nights" by Vernon Kellogg in the *Atlantic Monthly*, August, 1917. Also Kropotkin, *Mutual Aid, a Factor in Evolution*, chap. i.

² From Gilbert Murray's lecture on "Stoicism," quoted by H. G. Wells in *God the Invisible King*, pp. 88, 89.

mals, the nearest akin biologically to man, association is present, but the organizations are developed very meagerly in comparison with man. Where the gregarious tendencies are most highly cultivated, there appears a better foundation for happiness and morality. Duty, morality, culture, happiness, love, sacrifice, service, truth, religion—these are all terms meaningless apart from social relations.

We have, therefore, a biological justification for using the word “gregariousness” as a generic term for all the instinctive reactions which are serviceable to the group in the struggle for existence. Gregariousness has not always been regarded as an instinct, because in the case of “mammals at any rate the appearance of gregariousness has not been accompanied by any gross physical changes which are obviously associated with it.”¹ On the other hand the cumulative results of gregariousness are so great as to really overbalance the most pronounced structural variations, so that, as Trotter points out, we find a state, frequently thought of as an acquired rather than as a congenital mode of behavior, “capable of enabling the insect nervous system to compete in the complexity of its powers with that of the higher vertebrates.”² One might say that the whole structure is such that its functions and adaptations are quite as serviceable to the species as to the individual, and that includes the co-ordination and integration by the nervous system of reflexes; so that we are justified in urging that gregarious behavior is instinctive to the human organism as well as to the lower animals.

The psychologist today is emphasizing as never heretofore the significance of gregariousness. Since man is a social animal, all psychology is, of necessity, the psychology of a social animal. There is no human psychology of an unadulterated individualism, since man as a solitary animal does not exist. On that account Professor Cooley is inclined to believe that all the instincts are social and holds that “social or moral progress consists less in the aggrandisement of particular faculties or instincts and the suppression of others, than in the discipline of all with reference to the

¹ W. Trotter, *Instincts of the Herd in Peace and War*, p. 19.

² *Ibid.*, p. 20.

progressive organization of life."¹ He believes, however, that social behavior is of such a nature that it may be classified as instinctive. He says:

I take it that the child has by heredity a generous capacity and need for social feeling, rather too vague and plastic to be given any specific name like love. It is not so much any particular emotion or sentiment as the undifferentiated material of many, perhaps sociability is as good a name for it as any. And this material, like all other instinct, allies itself with social experience to form, as time goes on, a diversifying body of personal thought in which the phases of social feeling developed correspond, in some measure, to the complexity of life itself.²

The reference of religion to gregariousness may be substantiated by an abundance of material. It has been noted already that in primitivity human life is a group life, so that human interests and human needs are all tinged with a social element. Men went in groups to hunt and fish. Women went in groups to gather fruits. Men carried on war as groups. The group camped together, lived together, worked together, played together, fought together, and together they carried out their mimetic dances and other ceremonials. There would never have arisen a ceremonial or a cult had life been always and only individualistic. The struggle for existence was a social struggle, calling for co-operation on all sides. The connection between the gregarious tendency and the social life is so close that, as we have seen, some psychologists and sociologists find its origin there. Thus the need for food, the business of mating and procreating, the urge toward self-protection and preservation by means of war, and the search for a larger life by prying into the strange—all these interests have contributed to the understanding of human life as essentially, indeed as instinctively, gregarious.

Among the evidences of the connection between religion and gregariousness we need only remind ourselves of a few, such as totemism and its concomitant ceremonial, animism and its extension of the social bonds beyond the mundane, group magic, ancestor worship, mimetic dances and ceremonials connected with war, mimetic ceremonials and sacrificial rites connected with the supply

¹ Cooley, *Human Nature and the Social Order*, p. 12.

² *Ibid.*, pp. 50, 51.

of food, and ceremonies connected with the normal occupation of the group, such as the Toda dairy rites. Among the more sophisticated races the connection is no less apparent, as witness the caste system and Hinduism, monasticism in various religions, religious festivals, churches and church services, revival meetings, sacred meals in the Greek and Christian religions, and social and missionary propagandism.

But in another sense still, religion may be considered as an "irradiation," to borrow Starbuck's word, of the social instinct. The reference of religion to the limits of the human group is too narrow. The cult did not arise solely as a mimetic expression of group activities. It conveyed also the yearning of the group to enlist the aid of the extra-human power or powers in whose existence it believed. It was the *mutual aid* principle carried into the life of a people which did not believe that it was bounded by the ordinary human group limits. It was the attempt of the group to make vocal its groping for the power or powers with which it would fraternize and co-operate. The prayer of the religious man is characteristic, like the call of the bird that has lost its mate or the lonely animal that has strayed from the herd, of a gregarious nature.¹ Religion is the socializing of man, the social animal, with that which is beyond human society.

On the other hand the evolution of a technique for mechanical adjustment and control has been within the social group. Human needs and human struggles are social because they are human. Thus the urge for the organization of a technique of a mechanistic type as well as of a technique of a socializing character is the urge which man, the social animal, has experienced as he, an individual within a group, struggled for existence. The advance of the sciences, progress of any kind of knowledge, depends upon the social structure. We may interpret co-operation as a big historical sweep by which the various members of the race in different groups and in different periods of history have entered into one another's labors for the great good of the social whole. The heritage of a

¹ The parables of Jesus in Luke, chap. 15, are illustrative. Here religious need and religious longing are compared to the needs and longings of the sheep which had strayed from the flock, and the prodigal who had abandoned the privileges of home.

scientific past is a conservation of energy, releasing the power of the present for new tasks, fresh achievements. Progress is a child of gregariousness.

The foregoing discussion is not intended to be an exhaustive treatment of instinctive behavior. I think, however, that the principal types have been treated. The investigation has led to two conclusions, the first concerning the complexity of instinctive behavior, and the second showing that the origins of religion and science are traceable to a multiple causality.

1. In dealing with the five types of instinctive reactions with which we were concerned, it was impossible to deal with any one of them without finding one's self in contact with behavior which belonged to one or more of the other types. In the reactions resulting from the efforts to obtain food, ceremonials arose which involved gregarious activity. Crises in regard to the supply of food sometimes called forth flight; sometimes pugnacity. Necessity of providing for women and children developed a social disposition. The sexual life with its mating and procreating activities involved gregariousness, the provision of food, curiosity as to the reproductive process, and flight or pugnacity in the interests of preservation. Self-preservation involved a demand for food, a satisfaction for the normal sexual desires, a search into the strange and unknown, and co-operation. Curiosity might arise as to whether a fruit were food or poison, or over the behavior of animals, and be akin to fear. It also called forth a group co-operation to procure satisfaction for its needs. Gregariousness involved a group need for food, the mating and parental relationships, a social demand for preservation, and a common desire to satisfy the human craving to increase the stock of knowledge by investigation and experimentation. Thus we come back to the conclusion that the organism is a unity and that the dominating urge is its struggle for existence. The end of each type of instinctive behavior appears to be a co-operation with the other types in the human struggle.

2. Furthermore it is the struggle for existence to which the instinctive behavior is constantly contributing which has urged

man to the formation of the two techniques of control which we call religion and science. By religion he seeks to establish social adjustments and relationships with the extra-human environment, and by science he endeavors to create mechanical adjustments and relationships to that environment. The purpose of both is the same—that he may “have dominion.”¹

It remains for us to observe of what significance it is for theology that we have established the genesis and functions of religion and science in the psycho-physical organism and its modes of behavior. For it must be evident that the significance is far-reaching.

1. We have seen that it is possible to trace the origin of science and religion to certain typical methods of instinctive reaction to external stimuli. We are able also to trace with some degree of clarity the development of the attitudes from the instincts. Thus we have a genetic account of both religion and science as *human* attitudes. In that way the inductive approach has made it apparent that the differentiation is not between science, the human creation, and religion, the heavenly donation. Both are of human origin and both of them function to human needs. Hence both are developmental. We look for the beginnings of religion as well as of science in the behavior of primitive peoples where life is least complex, and not in an ecclesiastical Adam. We find that their function is to meet the insistent needs of man for control by the social and mechanical techniques which men have evolved in the religions and sciences. The whole conflict which raged so long between science and theology was due to the ecclesiastical self-assurance that theology possessed all the weight of divine authority behind it, whereas science was an impostor of human invention. If the conclusions of this investigation be correct, it means that the question of authority must be interpreted, not in the sense of conformity to ecclesiastical standards, but with reference to efficiency and ability in satisfying the needs of a progressing humanity.

2. The ecclesiasticizing of religion, which was the work of the Middle Ages, and the rationalizing of religion, which was attempted in the seventeenth and eighteenth centuries, were both of them of a piece with deductive science. The presupposition was that truth was ready-made and unalterable. The laws of science and the

¹ Gen. 1:28.

dogmas of religion were alike everlasting. Man's task was one of discovery. What becomes of that conception as we historically and psychologically observe man in his struggle for existence and dominion actually participating in the making of truth? It means that the task of theology is not simply the discovery and classification of never-to-be-altered dogmas, but is creative and serviceable. It too must accept the universal challenge to prove its worth by its ability to minister to man's religious needs.

In the examination of the instincts it was observed that the findings of biology include the modifiability and adaptability of the instincts. But in the instinctive reactions we have the simplest, least complex type of human behavior. If even the instincts are modifiable and adaptable, surely the life processes *in toto* must be likewise. It ought to be apparent that a static theology cannot hope to satisfy a kinetic world in which human nature itself is always in process of change. The future of theology is tied up with the recognition of its creative task as a ministrant to an evolving life.

Theology is an interpreter of religion. Its purpose is instrumental and functional rather than dictatorial and dogmatic. The only adequate criterion for testing and revising theology must be an appreciation of religion as we study it in actual social experience. The theology of the experience of an age of feudalism cannot do justice to the experiences of an age of democracy. It was out of the question that Anselm and Aquinas should write a theology for all time. Theology is always in the making even as religion itself is always in the making, or, still more fundamentally, as human life is conceived in terms of process. The theological task is never complete; so that a study of the religious life as evolving from the instinctive life constitutes a challenge for theology to face the situation in a time when experimental science, democracy, war, industrial expansion, and rapid transportation have created a new world with social, ethical, and religious problems demanding the creative efforts of serious-minded men.

3. The biocentric theory of the genesis and function of religion and science involves important consequences for the student of theological method. If the criterion be biocentric, then the demand

is for co-operation between the two disciplines in the interests of the highest good for life. That means that theology becomes more ethical in proportion as it becomes scientific. Ritschl tried to protect religion by saying that it is independent of science, and he argued that collisions occur only when a law of science, which obtains in the narrower field of nature, is erected into a world-law. His faculty psychology and dualism worked hand in hand. But the development of the organism as a unity suggests the impossibility of making such sharp lines of demarkation between the religious and scientific interests that the one can develop regardless of the other. In that way theology may be protected against the danger of making statements which would be annulled by the known findings of science. The purpose of the theological doctrine is as truly functional as the scientific theorem. The needs of life demand of each of them a regard for the other.

4. The apologetic possibilities of theology are immensely increased by the conclusions of this study. Some attention was given to the positivistic movement in its leading representative, Auguste Comte. It was Comte's contention that the history of man begins with a mythological stage, passes through a metaphysical stage, and is entering upon a positive stage. At the bottom we have cultureless religion, and at the top we shall have religionless culture. So also M. Guyau in his *Non-Religion of the Future* argued that civilization was moving toward a higher plane where it would be independent of religion. Thus these positivistic writers argued for the ultimate disintegration of religion. But if religion be a social attitude toward the extra-human environment having its roots in the instinctive life, as we have shown, we have an argument for its ineradicability and against any liability of corrosion. There will have to be a much greater modification in man's way of functioning than has yet taken place before religion is in danger of passing away.

The evolutionistic monism of Haeckel and Ostwald was another effort to deny to religion any legitimate sphere. Their attempt was to work out a monistic system on the basis of science which should do everything for life that religion has done in the past. Their work was based on the fundamental misconception that

religion deals only with the supernatural, and is therefore retired when scientific causality upsets miracle. But the work that was done by Höffding is the best defense against such an attack. He showed that the whole question of miracle was due to a confusion of the religious and scientific tasks. When we conceive of religion as an evaluatory attitude as against the explanatory attitude of science, we see at once that the relegation of the question of miracle to the domain of the scientist is the most scientific procedure, since science deals with causes, while it emancipates religion for its real task of evaluating and interpreting the phenomena of experience in terms of our cosmic relationships.

Naturalism has sometimes attacked religion on the ground that it is too metaphysical. All the truth of which we can be sure, says the naturalist, is that which we can prove in the laboratory. Thus the differentiation is made: religion deals with the metaphysical and hypothetical whereas science deals with the physical and demonstrable. This is made the basis for a scientific agnosticism as to the questions of God, freedom, and immortality. Religion has at least the *argumentum ad hominem* that science too has its metaphysics in the aeons, electrons, atoms, and molecules of the scientist. When scientists attempt to furnish a philosophy of life which shall take the place of and function for us as religion has done in the past, they become every whit as metaphysical and hypothetical as any religionist. The naturalistic theories are all of them capable of criticism at this point, as Professor Ward has shown in his epoch-making critique of *Naturalism and Agnosticism*. Moreover, the new emphasis in religion on function as against ontology means that the force of this attack is largely spent on a phantom enemy.

The persistence of religion, the truth of religion, the adequacy of doctrinal statements, and the uniqueness of Christianity—these are all of them questions with which we deal functionally today. Our defense is in terms of their serviceableness to life rather than their superior origin. The imperishable values are the achieved values rather than the donated. Against such an epistemology science has no case, and let us hope for her own sake that she desires none.